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## GASTRIC ULCER.*

By J. A. WESTFALL, M. D., Supply, Oklahoma

A gastric ulcer is more or less a destructive process, beginning in the mucosa, and extending to and even through the stomach wall. It occurs only where the gastric juices are found, that is in the extreme end of the oesophagus, the stomach proper and that portion of the duodenum above the common bile-duct and in rare occasions in the jejunum, after gastro-jenjunostomy. It may be acute or chronic. The acute ulcer is well defined and has clear cut edges, the chronic ulcer is more or less irregular. Most ulcers, however, have become chronic before they produce any appreciable symptoms.

History of cases suggesting peptic ulcer are found as far back as the tenth century. Mathew Baillie in 1795 was the first to write a clinical description of this disease, but it was Cruveilhier some forty years later who first pointed out that it was a distinct pathological entity.

The subject of gastric and duodenal ulcers has received a very prominent place in medical literature within the last ten years, but statistics vary considerable as to age, sex and location. Gastric ulcer probably is more frequent in females and duodenal more frequent in males. The ratio of gastric ulcer to duodenal is one to three, according to the latest Mayo records. The average age is about 40 years, although some authors put it from 20 to 39 years. Some ideas of the frequency of gastric and duodenal ulcers may be obtained by the fact that about five per cent. of autopsies in England show healed or unhealed ulcers and about four per cent in this country.

The cause of gastric ulcer is not known, but many interesting theories have been advanced and much work is being done at the present time. Martin in a study of the subject in Osler's System of Medicine, where he reviewed the work of sixty-three authors, found that only nine agreed. Most of the work is on the retention and infection theories. It has been a question for some time, whether the retention of food and increase of Hcl. were the result or were concerned with the cause of the ulcer. Chronic appendicitis and other chronic foci of infection is considered a prominent factor by Billings and Mayo Robson, by carrying infection by metastasis; and in many cases a history of co-existing appendiceal trouble can be found. Excessive carbohydrate diet is offered as a theory by some, while the Mayos believe that the custom of drinking very hot and cold liquids play an important role in the etiology, as they pass directly into the stomach before they have time to cool or warm in the mouth.

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W. W. Hamburger, of Chicago, summarizing the causes of gastric ulcer, arrives at this conclusion: "Frequently small acute lesions or abrasions occur in the stomach from food traumatism, emboli, or bacteria, and under usual conditions they promptly heal with little or no evidence of ever having occurred; but under unusual conditions as hypersecretion and hyperacidity, from neurotic causes, from motor insufficiency, from recurring pylorospasm, from diseases of appendix, gall-bladder, and from decayed motility, from atonic stomach, enlarged liver, distented gall-blader, pancreas or colon; that under these unusual conditions acute ulcers are prevented from healing and become chronic."

In considering the etiology of ulcers, some mention must be made of its relation to cancer. Mayo says that gastric ulcers frequently undergo malignancy, but duodenal ulcers seldom do. McCarter, in the pathological study of 280 cases of chronic gastric ulcer in which there were no symptoms or physical signs of malignancy, found in 63 per cent. atypical cells, but as the author points out this does not prove that these were ever anything but cancer from the beginning. We do not know that cancer is very apt to develop in any tissue that is subject to constant or repeated irritation, especially where there is a predisposition to cancer. Any case that does not respond to ulcer treatment and management in four or five weeks, malignancy must be considered. According to White, cancer is not yet diagnosed early enough to determine a preceding ulcer.

The symptoms of ulcer usually present a rather definite picture. Discomfort or pain after eating, nausea, belching, hyperacidity, bloating and vomiting, all with definite food relations. The pain may be gnawing, boring, sense of heaviness, and sometimes even sharp in character, and comes on from one-half to two hours after meals. Time of pain may be varied according to nature of the meal; proteins with a longer interval than the carbohydrates. It is usually located just left of the median line, in the epigastrium. One characteristic of the ulcer pain is that it is relieved with small quantities of food. Hemorrhages occur in many cases and occult blood can be found in about 25 per cent. Benign ulcers bleed intermittently. In pyloric and duodenal ulcers, in which complications are not very far advanced, periodic remission will always occur; nervous and physical fatigue, exposure, indiscretions in diet, and acute infection bring them on. Symptoms of ulcer of the stomach proper may not be so clear cut, but duodenal and pyloric ulcers have definite symptoms. The longer the period between pains and the intake of food the lower the ulcer, vomiting usually affords relief.

Severe pains in the abdomen, profuse sweating, evidence of shock, tenderness in epigastrium, abdominal rigidity, together with the history of ulcers, indicate perforation.

While the symptoms of most cases are typical, yet an accurate diagnosis of gastric ulcer is by no means a simple matter, and has only been made within the last six or seven years. Diagnosis is based on the following: History and clinical symptoms, X-ray, physical examination and the laboratory. Wm. Mayo considers their importance in the order named. The characteristic burning, gnawing, or boring pain with a constant relation to intake of food, together with the history of chronicity and remissions are the cardinal symptoms of a diagnosis. Attacks are more liable to come in spring and fall.

In all gastric disturbances except cancer, where there is a decrease in Hcl. there is a hypermobility of the stomach. As retention occurs in from 70 to 90 per cent. of both ulcer and cancer, if we neutralize the stomach contents, in the ulcer the retention of food will disappear; in cancer it will not be affected. Primary cancer usually begins in from the fourth to the sixth decade and a previous history is practically absent, while ulcer gives history of chronic gastric disturbances. In cancer there is usually decrease or absence of Hcl., and ulcer shows an increase, although many ulcers, 18 per cent in some statistics, show normal acidity. In considering hyperacidity as a point in diagnosis, we must remember that a functional increase of Hcl. may be due to nervous strain or to some

disturbances of gall-bladder, appendix, and in some cases of gastritis. Organic conditions as cholecystitis and cholelithiasis and appendicitis, which frequently obscure diagnosis, there is no regularity of symptoms, especially to food. In doudenal ulcers pain does not occur so soon, but usually two or three hours later and is more often a typical hunger pain. However, the smyptoms of gastric and duodenal ulcer are so closely associated that a differentiation is very difficult.

About 50 per cent. of the diagnosis can be made by X-ray in the hands of an expert, using the bismuth meal to study retention and outline of the ulcer. The laboratory is an important help in diagnosis in determining occult blood, the per cent. of Hcl., pus cells, streptococci, and staphylococci in the stomach contents.

Einhorn lays considerable stress on the thread test. A button is attached to the end of a silk thread and patient swallows thread to a point measured so button will pass through stomach. In about twelve hours thread is removed, and if dark red stain shows on thread, it indicates an ulcerated process. Positive test is of considerable importance, but a negative test indicates nothing, as the thread may not come in contact with the ulcer.

All cases of gastric and duodenal ulcers should undergo a rigid and routine medical treatment as soon as the diagnosis can be made.

The principles of treatment are: Rest of stomach until acute symptoms disappear, arrest secretions as much as possible and neutralize the present secretions. Simple ulcers without stenosis should be put in bed for three or four weeks with four more weeks of added rest from all work. All foci of infection should be carefully looked for and removed if possible. First day patient should receive little or no food, second day he should take three ounces of milk and cream every hour, in three or four days he should receive three soft eggs daily, one at a time, and nine ounces of some cereal well cooked. Cream soups and other soft foods should then be added to diet rather rapidly as anemia tends to cause ulcers to become chronic, but at no time should over six ounces be given at one feeding. Diet should be sugar free as possible. Most cases with no stagnation of food are usually controlled by feeding every hour and ten grains of magnesia and sodium bicarbonate, alternating with bismuth and cerium oxalate. Large doses of bismuth are required. In many clinics Einhorn's duodenal tube is used for the first two weeks, giving the stomach complete rest. Raw eggs, milk and lactose are given every two hours in those cases that do not yield to older methods. Thompson advises not to pay attention to constipation for the first week in order to suppress peristaltic movements of stomach. Ice cap on abdomen will relieve considerable pain.

Recent work of Hamburger has shown that pain is caused more by increased distention and peristalsis than by direct action of Hcl. on ulcer surface. For this he gives small doses of atropin or belladonna to control peristalsis. Silver nitrate in one-fourth to one-half grain pills three times daily is recommended by some authors.

It might be well to mention the treatment of Dr. Hart, of London, who, working on immunization theory, introduces 10 c.c. of normal horse-serum by mouth. He reports three complete recoveries after several years.

Most of the results of medical treatment can be obtained in four or five weeks and if at the end of that time an apparent cure at least cannot be affected surgery must be resorted to. I will not take up the surgery of gastric ulcer but will merely outline indications for surgical intervention as laid down by Einhorn.

1. Perforation demands immediate operation.
2. Recurrent profuse hemorrhage.
3. Frequent small hemorrhages, not influenced by treatment.
4. Constant continuous hypersecretion not yielding to treatment.

5. Severe pains not influenced considerably by repeated and prolonged treatment.

6. Stricture of pylorus.

7. Ulcers accompanied by tumor formation and suspected malignancy.

Gastric and duodenal ulcer is a disease with grave pathology and the prognosis is always uncertain. Cases yielding but indifferently to treatment are in constant danger of perforation, pyloric stenosis, hour glass stomach, and fatal anemia. Relapses occur in about two-fifths of all chronic cases which have been supposed to be cured.

In conclusion I wish to recall a few important points. The cause of gastric ulcer is not known, but infection and retention theories are coming into prominence. These ulcers have more or less typical symptoms and great care should be taken to determine a constant relation to pain and intake of food. The concensus of opinion among recent authors shows that there is a close relation between gastric ulcer and cancer. Absolute rest in bed for three to four weeks is necessary in all medical treatment. And, as Leube has shown, one-half to three-fourths of all cases will be cured in four to five weeks by medical treatment, but if not cured then they they will not be without surgical aid.

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## INSTRUMENTS OF PRECISION IN DIAGNOSIS.

### The Thermometer.

By GEO. F. GARRISON, M. D., Oklahoma City

In the fifth century, Cardinal Cusanus, a Roman Catholic churchman, made some timely suggestions as to the possible clinical value of weighing the blood and the urine, and of comparing the frequency of the pulse and respiration in disease with that in a normal control, as estimated by the water clock. These, however, were not put into effect or carried into practice, and remained unnoticed by succeeding generations. Between 1593 and 1597, Galileo had invented a rude thermometer, and as early as 1600 Kepler had used pulse-counting to time his astronomic observations. Later Galileo conceived the idea of using his own pulse to test the synchronous character of a pendulum's vibrations, which led him to the converse proposition of measuring the ratio and variation of the pulse by a pendulum. These ideas were appropriated and utilized by Sanctorius, who describes a clinical thermometer and pulse clock of his own devising about 1625, inventions which soon passed into the limbo of forgotten things for nearly a hundred years.

During the eighteenth century there were some noteworthy attempts to employ instruments of precision in diagnosis. In 1707, Sir John Floyer published his "Physicians' Pulse Watch," which records the first effort in a century to revive the forgotten lore of Galileo, Kepler, and Sanctorius.

Floyer broke the ice in that he tried to get the pulse-rate by timing its beat with a watch, which run for exactly one minute. He tabulated his results, but his work was neglected or its intention vitiated by a revival of the old Galenic doctrine of specific pulses, a special pulse for every disease. It was not until a later day, and under the influence of the great Dublin School, that the familiar figure of the doctor, watch in hand, came to be commonplace.

The clinical thermometry dreamed of by Sanctorius, and coquetted with by Boerhaave, Halter, and deHaen was revived in "Essays and Observations" (1740) of George Martine, of Scotland, which is the only scientific treatment of the subject before the time of Wunderlich.

Martine's ideas were carried into practice in the "Medical Reports" (1798) of James Currier. Long before Brand, Currie used cold baths in typhoid fever and checked up his results with the clinical thermometer.

It was not, however, until 1849 that William Thompson had worked out the mathematical relations of the laws governing heat transformations, and had established his "absolute scale of temperature," without which no thermometers could be reliable.

Upon this hint, Wunderlich made many careful observations of temperature in diseases, tabulating his results. He published his treatise on the relations of animal heat in disease in 1868. By utilizing the advanced thermodynamic knowledge of his time, Wunderlich made his book a permanent scientific classic, and thermometry became a recognized feature in clinical diagnosis.

But the thermometer did not come into general use until long after that. Neither Keen nor Tyson saw a thermometer or a hypodermic syringe during 1862-1865. Billings, however, in taking care of the wounded from seven days battle before Richmond (1862), had provided himself with both. We are told that the clinical thermometer was regarded as a novelty at Guy's Hospital as late as 1870.

## FOREIGN BODIES IN THE AIR PASSAGES.*

By E. S. FERGUSON, M. D., F. A. C. S., Oklahoma City

In 1897 Killian gave the profession the first demonstration that a foreign body could be successfully and safely recovered from the bronchi through a tube passed along the natural air passages. At first this procedure was rarely done and for several years only a few cases were reported. At the present time the technic has been very thoroughly worked out by Chevalier Jackson, Killian, Bruening, Johnson, and others, and in almost every state some one or more men have equipped themselves for the work, and still only comparatively a few of the American larygologists will attempt it.

The men doing the most practice in this line more fully than any others, agree, with Dr. Killian, that this procedure is not everybody's business. Accidents frequently occur and can only be minimized by each individual using the utmost care, and keeping in mind at all times that he is working in the extremely delicate tissues of the lungs and bronchi. Also if the foreign body has been in the air passage for a considerable time, the tissues become more easily injured and perforated because of the accompanying inflammation.

The mortality from foreign bodies in the lungs previous to the bronchoscopic period was very high, by some statisticions given as high as 52 per cent. and even, in those cases, not fatal impaired health was invariably the rule. There are a number of cases relieved by coughing out the invading substance but unless the object is small no such good luck can be expected. Generally, if expelled by coughing at all, it is very early after the accident, when the spasmodic coughing is the most severe. And again in some few cases where there is breaking down of the encysted mass, by abscess formation, and expelled during evacuation of the necrotic tissue.

Since endoscopy has been more or less perfected, the mortality has been reduced to such an extent that we must look upon the procedure as one of the great achievements in medicine.

Kahler reported 290 cases with 27 deaths, 9.6 per cent, and of these a number were due to accidents not directly attributable to the manipulation of instruments in the lungs. Others who have gathered statistics show mortality ranging from this up to 20 per cent.

The author has had fifteen or sixteen cases in the last six years and has had the privilege of assisting Dr. McHenry with a couple of his patients. I am also indebted to Dr. McHenry for his assistance in a few of my cases. It has been my misfortune to lose two of these cases, one I believe from too long an operative

*Read at Medicine Park, Okla., May 9, 1917.

manipulation and the other from pneumonia, the foreign body having been in the lung for about a week before attempt at removal. I also had a death in a young infant seven months old, following the removal of a whole peanut from the larynx. No effort was made to pass the bronchoscope as the child was almost strangled to death when brought to the hospital. A rapid tracheotomy was performed and the nut recovered, giving instant relief to breathing. The child was allowed to remain quiet for a little time and when apparently fully recovered from its hard struggle for air was picked up by the nurse to be placed in bed, when with a gasp respiration stopped and all efforts at resuscitation failed. We were unable to assign a definite cause for death unless it was sudden dilation of the heart brought about by the desperate effort at breathing for three hours before relief was given. A great many accidents have occurred while working in this new field of surgery, but we may look for better results as the tenchic is improved and the instruments for manipulation perfected.

Henry Hall Forbes of New York, in an excellent article in the December number of *Annals of Otology, Rhinology and Laryngology*, recounts the various accidents occurring during bronchoscopic work. He divides the accidents into three divisions in the analysis of his cases as follows:

First: Those occurring during the anesthetic stage,

Second: Accidents during the instrumentation, either for operation or examination, and

Third: Accidents occurring in the post-operative stage.

In the first stage the accidents happen from the effect of the anesthetic, sudden dyspnea due to a change in the position of the foreign body or a dislodgment of the foreign body, it taking a different position entirely.

During the second stage, accidents occur from collapses, sudden cessation of respiration, perforations of the oesophagus, asphyxiation, hemorrhages, opening of abscesses in the lungs, emphysema of skin, shock, breaking of instrument. This accident occurring in one of my own cases. After grasping a small nail in the right bronchus with forceps the small forceps tip broke, leaving not only the foreign body in the lung but the broken part of the instrument as well. I was able to remove both successfully in a few minutes after the accident happened. This gives the operator rather an uncomfortable feeling when the realization comes upon him that he has to deal not only with the original foreign body but in addition the broken instrument. In a child where every minute counts for so much it is a serious matter and instruments should be carefully inspected before beginning this operation.

Many of the fatalities during instrumentation occur from too long a manipulation, particularly in young children.

Jackson, in an article published in the *Annals of Otology, Rhinology and Laryngology*, states that bronchoscopy ordinarily should not be continued longer than 20 minutes in a child five years of age; nor longer than 30 minutes in one under twelve. Unless found necessary, the operation should not be repeated sooner than five days in children five years of age. In young infants 15 minutes is as long as manipulation can be safely prolonged. It is much safer to take three or four sittings at intervals of three or four days than to prolong the operation for an hour at a time.

The post-operative dangers are numerous and apparently successful operations are followed by serious complications. Oedema of the larynx is the most frequent accident, particularly in the young cases. In adults you need not fear this complication unless a great deal of trauma has been produced.

Jackson calls attention to the fact that some of the cases of supposed oedema are simply the accumulation of bronchial secretions flooding the air passages. He suggests that the tube be passed and these secretions sucked out before doing a tracheotomy unless true oedema exists. Many of the cases of oedema are no

doubt due to forcibly passing a tube too large for the larnyx in these very young children and great force should never be used in the passing of tubes. If your light is good, it is about as easy to locate your foreign body through a small tube as it is through a large one and the danger from an accompanying swelling greatly minimized.

While it is unfortunate to have to do a tracheotomy, if the patient is dyspneic, it should be done at once and not put off until the patient becomes exhausted from an effort at breathing. Some operators favor operating through a tracheal opening rather than run the danger of a sub-glottic oedema. In my work, I have found that I could do the work much quicker through a tracheal opening in very young children and thereby lessen the dangers coming from prolonged operative procedure.

Again, if the symptoms of dyspnea are marked, a tracheotomy may be performed and still pass the bronchoscope perorally. There is less danger of infection than in working through the trachael opening and you have more freedom in the use of your instrument.

Pneumonia, while not as frequent a post-operative complication, is more fatal and is always a possibility. By raising the foot of the bed, the bronchi will drain much better in children, and in adults, particularly in those cases where morphine has never been given and coughing somewhat arrested, this position is of benefit.

Shock is not an infrequent accident and is probably in many cases due to prolonged instrumentation in the hands of inexperienced operators. Still we find frequently that shock occurs without our being able to account for it in any way other than to the lack of resisting power in these patients.

There are no contra-indications to the use of the bronchoscope, if a foreign body is present in the lungs, but great care must be used if there is an enlarged thymus or aneurysm present and you would hardly be justified in its use, if these conditions are present, for diagnostic purposes, in disease.

The majority of cases occur in children and if given a correct history of the accident, it will be found that the patient has had the object in the mouth and by a sudden inspiration, very likely in laughing, is drawn into the larnyx or down along the trachea and bronchi. The symptoms are those of obstruction to breathing, or bronchial irritation. The most constant symptoms is violent coughing, paroxysmal at first in an effort to expel the object from the air passages, and later, will continue from the irritation or inflammation set up by the foreign body. Dyspnea is usually present and, if the foreign substance is large, may be very alarming or even fatal. After a time swelling is apt to add to this difficulty. As time goes on the throat becomes more tolerant but there will remain a constant cough accompanied by a considerable amount of secretion, leading frequently to a diagnosis of tuberculosis. If the foreign body lodges in the larynx the voice will be greatly impaired, but if it goes on down into trachea or bronchi this symptom will likely be absent. If the diagnosis has not been made early the history of spasmodic coughing, with dyspnea, continued for sometime and then followed by a persistent cough, a little fever and loss of flesh suspicion should be aroused. Chills may be present and quite frequently there is pain. Should there be any history leading to the possibility of a foreign body, an X-ray picture is advisable. If the picture is well taken, there are very few articles that will not give the shadow.

Occasionally where vegetable substances are inhaled, the value may be questionable, but in most cases it will show a suspicious spot. Of course, should dyspnea be marked and delay dangerous, the tube should be introduced at once without waiting for the picture.

Surgical cleanliness is extremely necessary and should be carried out as carefully in this as in any surgical procedure as far as is possible in working about the mouth.

This operation is done under either local or general anesthetic in most cases. Young children do not stand cocaine well and some operators remove the foreign bodies in infants without any anesthetic at all. Where possible, though, ether should be used in children and either ether or cocaine in adults. The practice of giving a large dose of morhpine just before the operation will help during the manipulation but in children at least, narcosis enough to prohibit coughing for some time may be dangerous, owing to accumulation of mucous in the lungs which can only be thrown off in that way.

Upper bronchoscopy, or the introduction of the tube through the mouth, can be done in most cases, but in case of a young child where haste is necessary, or the object low down, working through a tracheal opening may be advisable.

The cases coming under my observation are as follows:

In the right bronchus, shirt button, upholstering tack with large head, finishing nail about one inch in length, pumpkin seed. In the left bronchus, at second bifurcation, persimmon seed (Dr. McHenry's case), small tack loose in trachea or at bifurcation, sand burr, cockle burr, small fence staple, tin box corner binding, grain of corn, and one supposed corn, not found. In larynx, or just below cords, two sand burrs, one ordinary straight pin, backbone of fish 3-4 of an inch in length, peanut, and an open safety pin with point up.

In this list I have not mentioned several foreign bodies recovered from the oesophagus, the most interesting of which was a silver dollar which had proceeded on its way as far as the opening of the diaphragm fourteen inches from the lips. In conclusion, I will give a short history of the last case, operated on about a month ago which emphasizes many points brought out in the paper. Master E., age 8 years, referred by Dr. Lea Riely; family history negative, always had good health; during Christmas week, while playing, with a safety pin in his mouth, in some manner sucked it into larynx, very likely by laughing. Was not followed by paroxysm of coughing but voice immediately became husky. He went to school until about middle of March. About two weeks after the accident passed blood from bowels. Of late he developed a slight cough and loss of weight. Began to run temperature. It was suggested that he was developing tuberculosis owing to these symptoms, together with the hoarseness. When Dr. Riely saw him he had temperature 104, pulse 110, respiration 20 with diffuse ralls over both lungs, tongue coated. W. B. C. 23,000, differential 79.

Dr. Riely had X-ray taken which showed pin open in lower part of larynx; point sticking into post wall. Under ether, pin was removed through bronchoscope with considerable difficulty, owing to the fact that the pin was open and point upward.

Gentleness must always be practiced and be sure that force is never used, after grasping any object which may produce trauma of the mucous membrane.

## Discussion.

**Dr. D. D. McHenry,** Oklahoma City: There is one thing that a great many of the general practitioners have an idea about and in which I myself do not quite agree and that is the the examination of the bronchus for foreign body is very simple, and not a dangerous, procedure. In the hands of such men as Jackson, Castleberry, or two or three others I might mention, this is probably true, and there is very little danger probably, but in the hands of us who see only two or three cases in a year, I think there is a good deal of danger.

Just a few weeks ago I was called up to the hospital. A child living right there close had swallowed a safety pin, or it went down some place and they called and asked me to bring my bronchoscope and get it out. We made two or three X-rays and could not find a sign of the safety pin and were quite certain that the child was mistaken about it. The X-ray saved that child an operation. An X-ray should always be taken and I think our X-ray machines will show a shadow with most anything unless it is a glass object. I have gotten several

pieces out of the oesophagus but these pieces can be easily gone past with the bronchoscope. These cases are very interesting but there is hardly enough to keep us in practice. It is dangerous work to search very long for these foreign bodies.

**Dr. W. E. Dixon,** Oklahoma City: Having heard the paper before, I had occasion to look up a little of the statistics and I find that Dr. Jackson reports 170 cases of different kinds through the country with a mortality of 5.3 per cent. and with 156 successes in removal of foreign bodies. Dr. Jackson reports 182 cases with 3 deaths, or 1.7 per cent, or rather four deaths; the fourth being an advanced case of kidney trouble. Three of them had been operated before and had tracheobronchitis, and in Dr. Jackson's work of 706 cases, he never did a tracheotomy. He tried the bronchoscpoe but advised against it for the reason that anatomically it would be much easier to find the foreign body through the tracheotomy opening, and he says you have just as good movement through the mouth as you do through the tracheal opening. He does not use it any longer. He reports 36 cases of infants under one year of age where he successfully removed foreign bodies and in these cases he has had no accidents. In 26 cases of infants one year of age, where they were normal, the temperature did not rise to 100. He advises working only fifteen minutes under six months of age. I think the danger is more in the instruments than in the length of time. Jackson never uses anything over a four millimeter tube for a child one year of age, and never over five to six years of age. With a small tube the bodies can be seen well and we are not likely to do the damage that we are with larger instruments.

The father of this work, Killian, has devised some instruments of 4, 4 1-2, 5, 6, and 7 millimeters in the last few years and he uses the Curston headlight. Browning came along and devised a method using an instrument with a light on the proximal end. Of course the smaller tube is harder to illuminate. Of course in my limited experience, having learned to work with the Bruening collar, I discarded this and sent in my instruments, and now I am using the Jackson.

It is wonderful to open up the trachea so you can see and get your mouth, trachea and larynx right in the direct light. After using the smaller tubes I discovered the other way seemed to me a very complicated proposition. I had a case where I used a bronchoscope every other day for two or three months in treating tracheal bronchitis, and the patient was never inconvenienced except being hoarse for a little while. I think when we get our technique down we can pass these tubes without any anesthetic. I enjoyed the paper very much.

**Dr. W. A. Cook,** Tulsa: I have never had any experience with the bronchoscope. I have never had the price to buy the instrument. I do not think anyone should undertake it unless he has sufficient practice so that he can develop the technique because the mortality is so high that it is very dangerous.

I had an interesting experience with a foreign body in trachea. The child was brought to me after having fallen down stairs and swallowing a ring. The ring had been made out of glass beads like the Indians use strung on a wire. This ring dropped down into the throat and the child cried from fright and said he could not breathe well. The mother tried to get it out, and failed. We had it X-rayed and got an outline of the wire. It showed to be in the trachea. The child was given a general anesthetic and by holding the vocal chords separated we were able to get down between the chords and get the ring out. There was very little inflammation with a complete restoration of the voice in about thirty days.

**Dr. E. A. Abernathy,** Altus: I had a case brought to me sometime ago of a little girl eight years old who had a pin in her mouth and in some way she claimed she sucked this down into her windpipe. The father and mother consulted the family physician and he referred them to me. This little girl had had trouble, so they said, with her breathing. The first thing I had done was an X-ray, which disclosed no foreign substances, and I was thoroughly convinced that there was no foreign body there and also convinced the child there was no foreign body there, and she went on home and never had any trouble whatever. The

family physician and father and mother had questioned the little girl so often about her breathing that this child from the standpoint of nerves had worked herself up until she had 99 1-2 temperature and could imagine most anything was the trouble.

**Dr. L. A. Newton,** Oklahoma City: I think that the X-ray should be used a great deal, even more than it is used, and that a man should have experience along this line if any.

**Dr. T. J. Horsley,** Mangum: I want to speak of the importance of making X-rays. I recall a case about two years ago, in my practice, that impressed that upon my mind. I was called to the country to see a two year old boy. The doctor told me I would have to go probably to do a tracheotomy for diphtheria. He said he had given about 10,000 units of antitoxin. The child was breathing well when I got there so I advised his diagnosis was probably correct. The child was running a temperature of 99 1-2 or 100, so I didn't do anything. I told him I thought he had done all that was necessary, collected my outfit, and went home. Two days later he phoned he was bringing the child in, to be ready to operate at once. He brought the child in to the hospital, but again the child was breathing well by the time he reached the hospital. He had been given antitoxin, about 20,000 units in three days. I examined the child and didn't find anything wrong with it especially. So I left it in the hospital. A couple of days later they moved it out in the city. It had no trouble at all with low temperature, and one night late in in the night it developed a little difficulty breathing and again they called me a second time to see it; gave it more antitoxin and the next morning I called in counsel. That physician found her breathing pretty badly and said to give the child more antitoxin. The third one we called in said to keep giving antitoxin. The child finally developed bronchial pneumonia and became very much emaciated. Finally it got better and they took the child home; in about three weeks from the time they took the child home during a paroxysm it coughed up a half peanut,—and got all right. So if we had had an X-ray made in that case it would have saved a lot of trouble. A peanut will show in the X-ray possibly because of the oil in the nut.

**Dr. A. W. Roth,** Tulsa: I saw Dr. Ballinger one day take a peanut out of a child. The X-ray was such that you could not locate the peanut after it came out, not much larger than the head of a pin. You could see it very nicely in the X-ray plate.

**Dr. E. S. Ferguson,** Oklahoma City: My experience has been with older children except one, which was six or seven months old. The others have been about four years of age, and I have been rather successful in getting the objects. The seeing of the foreign body is not always the difficulty. You might remember that. After you have seen your object, then your trouble begins.

You have to pass your forceps through that tube and getting the foreign body after you locate it is much more trouble than locating it. If you have some of these many things with a sharp point, you are up against a pretty hard proposition. It is not easy to get it out. You can get out a fence staple as easily as you can a safety pin, with the delicate instruments you operate with.

My experience has been that it is hard to get along without an anesthetic to avoid the coughing and struggling. You don't know when you are going to get one of the coughing cases. I have had one or two adult cases done under cocain, but the children are frightened to death and you have to deal with them forcibly, so that I think it is much better to give a general anesthetic. These men like Jackson get to be experts so that they do not take long enough to require such preparation, but when we only have a case occasionally I think it is best to have the anesthetic. In the larynx you can just take it out with the laryngoscope.

# THE DIAGNOSTIC VALUE OF NYSTAGMUS.*

By AUSTIN L. GUTHRIE, A. B., M. D., Oklahoma City

In the following short paper we do not attempt a complete discussion of the subject of nystagmus but shall confine ourselves to that which may be of diagnostic value.

**Definition:** In order that nystagmus may be of value from a diagnostic standpoint we must limit our definition of the subject to those ocular movements characterized by regular, quick, short movements of two components, a quick and a slow, oscillating about a central point with the eyes directed in a natural forward or primary position.

These oscillations may be rotary, horizontal, vertical, or oblique, or any combination of the same, and they vary in width from the slightest perception to five or six m. m., and in frequency, from one to five a second. As a rule they are very symmetrical and bilateral. Their frequency, width, direction, and relative time of each component is the same in each eye. Exceptions to this rule, however, have been reported, but personally I have never seen any.

It is seldom that we see a case of nystagmus where the above characters are constant. They are usually intermittent and show in the same individual a tendency to vary, e. g., excitement or depression, mental concentration—especially during an examination of the eyes—and ocular fixation, physical exertion, alcoholic stimulation or any other condition predisposing to sudden change in blood pressure or cranial hyperemia, or the abatement of the original cause or its inhibitory action may cause a decided change in the character of nystagmus.

**Types:** We have two types: a physiologic and a pathologic. Physiologic nystagmus is never spontaneous, being manifest only after some artificial irritation of the vestibular apparatus. Due to the fact that both labyrinths send out equal impulses, the normal individual has no nystagmus unless these impulses are relatively disturbed by some external agent such as the application of heat or cold, or electricity, or a physiologic irritation induced by turning movements to the right or left.

Heat has a stimulating effect upon the endings of the vestibular nerve, producing an inequality of impulses, the stronger being from the side stimulated, causing a nystagmus towards that side. Cold has an opposite effect to heat, producing nystagmus to the opposite side. The cathode pole of a galvanic current has a stimulating or irritative effect while the anode has an inhibitory effect. Therefore, if the cathode is applied to the right ear we will get a nystagmus to the right; if the anode is applied to the right ear we will get a nystagmus to the left. A current of six milliamperes is used for this test.

**Rotation Tests:** There will be a primary nystagmus to the right while the patient is being turned to the right; the after nystamgus will be to the left, and vice versa. When the head is maintained in the upright position the nystagmus will be horizontal, due to a stimulation of the horizontal canals. If the head is inclined 90 degrees to the shoulder, the posterior vertical pair will be stimulated with a vertical nystagmus resulting. If the head is inclined forward or backward, the anterior vertical canals will be stimulated, causing a rotary nystagmus. For accurate testing of the character of the nystagmus, the patient should wear frosted glasses so there will be no fixation of vision. E. P. Fowler claims that nystagmus will last twice as long if the eyes remain closed.

The average time of the after nystagmus following ten turns will be 24 seconds, possibly lasting from one to three seconds longer when turned to the right than when turned to the left. The turns should be made at the rate of one or two seconds. The rapidity of the turns will have but little, if any, effect upon

*Read at Medicine Park, Okla., May 9, 1917.

the duration of the after nystagmus, but the intensity of the nystagmus may be increased by rapid turning. Some writers have claimed that the duration will be longer after twenty turns, but this statement has been much disputed. In dancers who habitually turn to the right, the after nystagmus is much less in duration than when they turn to the left.

All tests in order to be accurate should be made with the eyes directed forward behind opaque glasses and the direction, duration, and plane of rotation closely observed.

In contra-distinction to the previously mentioned symptom known as nystagmus, we have certain ocular movements known as pseudo-nystagmus that vary from the true form in that they are not regular but very jerky; they rarely occur when the eyes are in the primary position but are manifest when the eyes are turned away from the primary position, especially when nearing the limit of rotation. The movements are from this point and return to it but never pass it; in other words, there is no central point of oscillation. This form, although usually bilateral, is more frequently unilateral than the true nystagmus. The pseudo-nystagmus is found in several nervous disorders, the most common of which is multiple sclerosis and Freidreich's ataxia.

**Etiology:** The true nystagmus may be hereditary, congenital or acquired. The hereditary and congenital forms are rare and are only mentioned in order that we may not forget them as etiological factors. The acquired forms are various and complex and require considerable study if this one symptom is to be of any value to us in making a diagnosis. Any condition producing bilateral amblyopia—unilateral amblyopia rarely—in early infancy may cause nystagmus in a patient whose history may indicate that the lesion is congenital, this being due to a lack of proper observation of the infant during the first few weeks of life. The most frequent of these causes are corneal opacities following ophthalmia neonatorum. Other conditions occurring later in life, such as the various forms of squint, possibly high degrees of astigmatism, and certain occupations that cause excessive eye strain due to improper illumination and abnormal position of the eyes, may be causative factors. The classical instance is the coal-miner.

Nystagmus is of frequent occurrence in multiple sclerosis, being one of a triad of symptoms which definitely identifies this disease. It is also found in syringomyelia in sufficient number of cases to be considered a symptom of that disease. Several writers have found nystagmus associated with various other nervous lesions, but much doubt has arisen as to its differentiation from the pseudo-nystagmus, or an accurate elimination of ocular abnormalities, congenital defects or vestibular lesions.

Nystagmus may be caused by a toxic dose of the following poisons: Arsenic, lead, quinine, cocaine, ergot, etc. It is frequently seen during ether anesthesia.

Probably the most frequent cause for nystagmus is to be found in pathologic conditions of the labyrinth and the vestibular nerve together with its brain connections. It is here that the different types of nystagmus and the various tests are of special value in making a differential diagnosis.

First let us consider a case of circumscribed labyrinthitis. There may or may not be spontaneous nystagmus. If present, it will usually be rotary in character and may be to either side, due to the fact that both labyrinths are still functionating. The rotary, caloric, and galvanic tests will be normal.

Should the inflammation become diffuse the nystagmus will become more constant. If serous in character, it will be rotary and to either side—more likely to the sound side. If to the diseased side, it shows that the lesion is only irritative and not destructive. When to the diseased side, the cold caloric test applied to the diseased side will diminish the nystagmus. If applied to the sound side, it will be increased. If the nystagmus is to the sound side and the cold ap-

plied to the diseased side, the reaction will be negative; if applied to the sound side, the nystagmus will be diminished. The hot caloric test has an opposite reaction to the cold. The galvanic reactions will be quite similar to the caloric reactions.

In the serous form the pointing errors and falling tendencies are usually quite negligible, but if present, they will be away from the side of the quick component. If the nystagmus is to the sound side, the cold caloric to the sound ear will diminish the tendency to fall and correct the pointing error. If used on the diseased side, the reaction will be negative. If the nystagmus is to the diseased side, the reactions will be the same as in the circumscribed irritative form. If the nystagmus is very marked, there will be a tendency for the patient to lie upon the side of the quick component. In most cases where the exudate is serous, the symptoms will be less intense and our tests less decisive than in the purulent form.

In the acute suppurative labyrinthitis, the functionating labyrinth is suddenly destroyed, leaving no part to react to the physiologic tests. The nystagmus will be stronger and our tests positive and more reliable. The nystagmus will be rotary—possibly rotary and horizontal—and always to the sound side. Caloric to the diseased side will be negative; to the sound side it will diminish the nystagmus and correct the falling tendencies and pointing errors which usually are pronounced and to the diseased side. The position in bed will be on the sound side. When the destruction has been complete, the nystagmus will disappear within a period of from three to fourteen days. The rotary test with the head upright will cause vertigo unlike that experienced by the patient, but with the head flexed at 90 degrees, a similar vertigo will be experienced.

In the subacute and chronic forms the nystagmus may be to either or both sides. It will be weak and not always spontaneous or constant. The caloric tests on the diseased side will be reduced or negative, depending upon the direction of the nystagmus. The falling tendencies and pointing errors are seldom present; if present, very inconstant. The nystagmus gradually diminishes in strength and constancy but does not entirely disappear as soon as in the acute suppurative form.

Should intracranial complications occur, the nystagmus may shift from the sound to the diseased side until the pathological process passes from the irritative stage to that of destruction of the vestibular nerve, when the nystagmus will return to the sound side. I have observed this change in a case of acute purulent otitis media involving the labyrinth and later the meninges.

In meningitis the nystagmus is horizontal and strong and may be to either side as stated above. The caloric tests are positive on both sides—unless there is an associated labyrinthine lesion— and have no influence upon the pointing errors or falling tendencies which are always toward the diseased side regardless of the direction of the nystagmus. The position in bed will be on the side of the quick component. The rotary test with the head upright will produce vertigo similar to that experienced by the patient. The nystagmus increases with the progress of the disease.

**Tumors:** In tumors of the cerebello-pontine angle, spontaneous nystagmus is likely to be late in developing but increasingly pronounced with the development of the tumor. There will be a loss of vestibular irritability on the affected side due to an interruption of the nerve impulse along its way to the brain centers. In cerebellar tumors involving the cortex, nystagmus may be an early symptom, but in the deeper seated growths is usually absent. In other words the intra-cerebellar tumors rarely produce nystagmus; the extra-cerebellar tumors usually produce nystagmus. In tumors involving the vestibular nerve or its intracranial connections, causing partial deafness, the cold caloric to the sound side will greatly reduce the nystagmus. If deafness is complete and associated with symptoms of intracranial pressure, such as chocked disc,

you may not be able to induce nystagmus by syringing the unaffected ear with cold water. This diminished vestibular irritability was originally stated by W. P. Eagleton as a sign of increased intracranial pressure. Spontaneous nystagmus has been reported in cases of tumors of the cerebrum where there was no auditory disturbance whatever. These cases are exceedingly rare and may have been associated with some undiscovered lesion posterior to the cerebrum.

In certain circumnuclear lesions—multiple sclerosis and syringomyelia—the nystagmus may be very marked and never disappears. In other lesions, such as neuritis and cerebellar abscesses, the reactions will be the same as in meningitis. In fibromas, the nystagmus lasts months and also in gliomas, but since the glioma is a pedunculated tumor the symptoms may change with a change of position of the head, i. e., the change of position of the tumor may relieve the pressure on the vestibular nerve.

Nystagmus will be coarser and more marked in subtentorial lesions than in labyrnithine disease and their differential diagnosis will become comparatively easy if we are fully acquainted with the labyrinthine tests and reactions.

After repeated experiments, I. Leon Meyers and J. Muskens claim that nystagmus is essentially of vestibular origin, being due to a pathologic condition of the vestibular complex or its oculo-motor tracts. Whether this theory covers the entire etiology or not, we feel assured that a great percentage of cases may be traced to this origin. If the symptoms of nystagmus are to be of any value to us in making a diagnosis, we must thoroughly understand the physiologic labyrinthine tests and make accurate observations of the character, direction, and duration of the nystagmus. First, determine whether it is physiologic or pathologic in type; second, localize the lesion to one or the other side; third, separate the labyrinthine from the intracranial lesions; fourth, ascertain if possible the character of the causative agent.

## Discussion.

**Dr. E. S. Ferguson,** Oklahoma City: Dr. Guthrie's paper is an extremely interesting one, on a subject too few of us put to practical use. It is only by frequent application of the tests that they are of any real value, because you fail to recognize the significance of the signs of nystagmus in the diagnosis of the intracranial lesions unless thoroughly understood. I have found that it is necessary to refer to my notes when applying the tests, because I do not have occasion to examine cases frequently enough to carry the table of signs in my head.

While in Vienna I had the pleasure of taking a course under Drs. Ruttin and Barany and was struck with the ease with which they could defferentiate different lesions in the brain, by the scientific examination of the nystagmus. Let us all study the cases of head lesions more carefully and use the knowledge placed at our command for making a diagnosis early, when medical or surgical interference may be applied with some hopes of success. Dr. Guthrie has outlined clearly the method of applying these tests and given us a definite meaning of the nystagmus signs, and I thank him for presenting this subject and calling our attention to the value of a close study of the signs in making a diagnosis in diseased condition about the head.

**Dr. Guthrie:** If irritative, you will keep in mind that lesions of the labyrinth are no different from the lesions of the nervous system. These tests will be very simple; that heat has a stimulating action, that cold has an inhibitory effect; the hot caloric test has an opposite reaction to the cold.

Dr. Barnes asked the question, "What would be the effect if the labyrinth is destroyed?" You would get no effect at all; except with a strong galvanic current. Heat or cold at the proper temperature, say cold at 70 degrees and heat at 110, will not give any reaction.

The point that I wish to emphasize chiefly in this paper is that in a case of nystagmus (practically all of us as oculists have a patient of this sort) we should first differentiate between the true and false nystagmus—the tests are simple. Of course the differential points between multiple sclerosis and syringomyelia are more difficult to remember. You can make out a small outline which will differentiate them very easily.

## PURPURA HEMORRHAGICA.*

### Report of Case.

By WILLIAM W. TAYLOR, M. D., Oklahoma City

Hemorrhagic diseases of the newborn, infantlie scurvy, and hemophilia are fairly definite and distinct disease entities. Purpura is not a disease. The term purpura only designates a symptom-complex in which there is a tendency to spontaneous hemorrhage under the skin from the mucous membranes and a low platelet blood-count.

For convenience purpura may be clinically divided into symptomatic and primary.

Symptomatic purpura is seen in such diseased conditions as are associated with infections, toxemias, diseases of the blood itself and some nutritional disturbances. The toxins may or may not be of bacterial origin. It is claimed by some that they are by-products of intermediary metabolism. Both are probably true at times.

In primary purpura, as Dunn says, the primary is equivalent to "of unknown origin"; and inasmuch as we cannot assign a cause for them, as we can for the symtomatic purpura, as well as for other reasons, we may class them among the disturbances of nutrition and metabolism which, at the present time, are not very thoroughly understood.

The hemorrhage itself results from some abnormality of the blood which lessens its coagulability; also from some abnormal condition of the blood vessels themselves produced by a degenerative change affecting the intima of the smaller ones.

According to the view of the majority of observers, this condition is due to toxic substances which get into the circulation. These toxins are due to metabolic changes and to bacterial infections, many of them of obscure origin. These poisons produce degenerative changes in the blood vessel walls, making them permeable. Also they interfere with the coagulability of the blood itself by changes in the elements of the same.

All these types are characterized by cutaneous hemorrhages and in the so-called hemorrhagic purpura we have in addition, hemorrhages from any of the mucous membranes of the body—that of the nose, mouth, throat, stomach, intestines or of the genito-urinary tract.

### Report of Case.

Chas. B., 5 years old, was child of healthy parents. There were three other children, all healthy. Mother had lost no children and had had no miscarriages. He had never been a robust child. Had whooping cough six months previously but made a good recovery.

For the past two weeks his mother noticed that he had not been quite as well

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as usual. Did not care to play and at times would lie down during the day, which was unusual. For several days complained of his legs paining. The mother thought there was no temperature, no evidence of gastro-intestinal disturbances except that he did not care for his food. Drank buttermilk in small amounts to the exclusion of other things. At about this time the mother noticed purple spots over his body about the size of a pea; first appearing on his legs and then over abdomen and chest. This condition had persisted for one week before he was brought into the University Hospital.

His tempreature was 100 F., pulse 130. The urine showed nothing abnormal. He was not constipated—his mother said his stools had been thin and black—several daily.

Physical examination showed a child rather thin, somewhat underdeveloped and pale, tongue was coated, teeth were perfect. The gums were reddened, somewhat swollen, from which oozed blood. The mucous membrane of the throat was injected. Heart, though rapid, was normal as were the lungs. Abdomen was flat, showing no distention; was not sensitive to palpation. No muscular spasm. Extremities were normal. No Kernig's sign. No enlargement of peripheral lymph nodes. Rectal examination showed nothing. There were numerous cutaneous hemorrhages over both legs and abdomen. In some areas almost as thick as a measles eruption. Hemorrhages from mucous membrane of nose, mouth, throat, stomach and intestines. He at times complained of intense abdominal pains. Vomited four times during the first day in the hospital. The vomitus consisted of mucuos and dark blood. The bowel movements, five in number, contained dark and bright blood mixed with mucous. The abdominal pains, spasmodic in nature, were so severe that they required paregoric to relieve them.

The symptoms improved to some extent for three days, then he began to appear more ill in every respect. The hemorrhages increased; he became more or less stupid the greater part of the time; developed a septic appearance; the pulse became more rapid and weak; the temperature going to 103 F. The hemorrhages from the mucous membrane increased alarmingly on the third night, the child dying the next morning just as we were preparing to give a transfusion. The attacks of abdominal pain were probably due to the hemorrhages of the mucous membrane of the intestines.

These hemorrhages, subcutaneous and of the mucous membrane, with the other symptoms were undoubtedly due to some abnormal systemic condition. It could not be placed under the head of the symtomatic purpura, as there is no clearly assignable cause for it. Therefore, it must come under the caption of primary purpura of the hemorrhagic type. The attacks of the abdominal pain are more suggestive of Henoch's purpura, but associated as it is in this case, only goes to show that there are common etiological factors in the production of the different types of purpura.

The treatment is entirely symtomatic. Our efforts in the treatment should be directed toward the relief of the toxemia which produces changes in the blood and in the blood vessel walls. Inasmuch as we do not at the present time know the nature of this poison, we cannot hope to furnish any specific treatment for it.

We have a treatment for the hemorrhagic condition, almost specific, in the use of whole blood or serums—human or animal. In the moribund cases, direct transfusion is indicated and, if possible, should be resorted to. This should be regarded a major operation and undertaken only by one familiar with the technique. The external jugular is the vein of choice in transfusion in infants and children. The small size of the veins of children make it very difficult to get into them, for any purpose. Transfusion is not necessary in this condition except in the extreme cases.

Whole blood injected subcutaneously or intramuscularly is very efficacious in controlling the hemorrhages. The safety and simplicity of the procedure make

it very available for the practitioner into whose hands these cases properly fall. The very best results are reported by careful observers in these cases from this therapeutic measure. 30 c.c. (thirty) should be given and repeated in six to eight hours, as the case demands.

If the donor is a parent or one of the immediate family, there is practically no danger of hemolysis. There seems to be no difference practically whether whole blood or the serum from the human blood is used. Equally good results are reported from both.

Horse serum is of the same value in this condition but of less value than human. Diphtheria antitoxin has been suggested and used in the absence of other available sera. Fruit juices should have a place amongst the therapeutic remedies suggested. Calcium salts, while seemingly of no service in promoting the coagulability of the blood, are generally prescribed; the lactate preferably. Adrenalin is of no value.

Bibliography: Holt's Diseases of Children; Dunn: Diseases of Children; Kerr: Archives of Pediatrics; Morse: Case Histories.

## HEMORRHOIDS.

H. J. Spencer, New York (*Journal A. M. A.*, Jan. 26, 1918), calls attention to the danger of the injection treatment of hemorrhoids. The rectal mucosa cannot be freed from pathogenic organisms which may be carried deeper by hypodermic needle. If an anesthetic is used, defensive reflexes are abolished and the mechanical spread of the infection is unretarded. Walking, jolting in cars, etc., helps spread the infection and outpatients are subjected to double perils. He reports a case in which hemorrhoids were injected with quinin and urea hydrochloride, and which ended fatally, the necropsy showing infection by gas bacillus. There was local necrosis and parenchymatous degeneration of the lungs, heart, liver, kidneys, etc. Emulsion from one of the pus pockets was injected into a rabbit which later died. The same organism found in the rectal mucosa of the patient appeared in the blood culture from the rabbit's heart.

## EXSTROPHY OF THE BLADDER

Exstrophy of the bladder is a rare congenital malformation, says C. H. Mayo, Rochester, Minn., (*Journal A. M. A.*, Dec. 22, 1917). It is a most distressing condition, probably due to variations of the salts in the amniotic fluid. The difficulty of protecting the protuding bladder and the constant dribbling of urine are hard to remedy. Mayo reviews the surgical methods that have been used and the reasons why they do not meet the conditions. He also reports his own technic, which he has learned from experience of thirty-seven patients seen and operated on by the plastic and Maydl-Moynihan methods and thirteen successfully operated on by the transplantation method, that is, with the ureteral outlets transplanted into the intestine. The secret of successfully performing this operation of anastomosing the ureter into the bowel is to tabularize the ureteral entrance for 1 1-4 inches. There are two methods of doing this. The writer finds Coffey's modification of the Witzel method the most efficient and gives the technic in detail. After the age of forty, he says, however, it is probable that ureteral anastomies with the skin in the back is best from the standpoint of low mortality and future length of life. The plastic operations when used by him did not afford control of the urine. Children to be operated on should be old enough to attend to their own needs. Among the patients he has operated on, there was one operative death, one died from pneumonia a few weeks after leaving the clinic, one died three years later from pulmonary tuberculosis, and one from typhoid fever. Children who have been successfully operated on were able to go to school and receive an education, and the older ones are all working.

# REPORT OF A CASE OF COMPLETE BONY OBSTRUCTION OF BOTH NARES*

By W. H. RUTLAND, B. S., M. D., Altus, Okla.

The case which I desire to report is that of an infant born with complete bony obstruction of both nasal passages, a brief history of which follows:

On October 16, 1916, I was called by phone to assist a physician in a case of obstructed breathing. On arriving at this place I found a new born babe being held in the lap of a neighbor lady while the attending physician, Dr. G., was studiously busy performing the duty of keeping the babe's mouth open, its tongue depressed, and the angles of its jaws held up and forward. Whenever the infant was deprived of this assistance, its tongue would immediately force itself upward and backward and obstruct the oropharynx and would immediately begin to struggle for breath and become cyanosed.

After a careful examination I found that the lungs, trachea, and larynx appeared to be free and open and that the source of obstruction must be located higher up than the epiglottis.

I then observed that the uvula, soft palate, and nasopharnyx seemed to be practically normal. On examining the nose I found the anterior two thirds to be about normal in appearance, but that it was impossible to pass the smallest size probe through either naris into the nasopharynx, and that this obstruction seemed to be confined to the posterior fourth of each nostril.

Since my efforts so far seemed to fail to be of much comfort to the patient, I began to cast about to see if I might do something to relieve the doctor who had reasons to feel forelorn over the prospects of having to remain on duty indefinitely as above mentioned. Then the thought occurred to me that if a tube were inserted into the infant's mouth to extend beyond the base of the tongue, it might enable the child to breathe when its tongue and jaw were released. Acting upon this suggestion I introduced a tracheotomy tube into the childs' mouth so that the distal end of this tube would rest near the base of the tongue and to my delight it breathed comfortably with this device which was held in place by a tape passed around the back of the neck.

With this one exception the infant seemed to be practically normal, hence I hoped that with this assistance for a short time the child might develop to the point where it could breathe comfortably without the aid of this mechanical device, but such was not the case. While the child could breathe fairly well with this device yet it seemed to be a source of annoyance to it, and it required almost constant care on the part of some one to keep it adjusted, since the infant would frequently work this tube out if its mouth and get itself into trouble.

When the child was two weeks old, with the use of a burr four m.m. in diameter I drilled through the obstruction interposed between the right naris and found this obstruction to be a mass of solid bone about three-eights of an inch thick; and about three weeks later I drilled a larger hole through the obstruction in the left nostril and enlarged the opening in the right side. After the last operation the child continued to breathe with as much comfort as that of a normal child.

Failing to obtain access to any literature of any consequense upon this class of cases, I am unable to offer anything further than the above brief clinical report.

I anticipated much pleasure in watching the progress of this case through the period of development of this child, but very unfortunately the child had to depend upon artificial feeding for its subsistence and as a result it continued in a state of lower vitality and finally succumbed to an attack of pneumonia when it was about two months old.

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Our conclusion is that the case was one of congenital osteoma, and according to the history of such cases, no doubt the patient would have suffered a recurrence of this embarrasing obstruction in the near future.

**Discussion.**

**Dr. D. D. McHenry,** Oklahoma City: Dr. Rutland asked me to open the discussion on this subject and I began immediately to look through the literature I had on hand, and all I could find and was unable to find anything on the subject. Just about a week or ten days ago it came into my mind to look up Gould's Curiosities of Medicine, and I found that in 1863 a case was reported of complete bone obstruction of both nares, and in about 1875 Jarvis reported in the *New York Medical Journal* a similar case, and in 1880 Ronaldson, in the *Edinburg Medical Journal*, reported a case, and these were the only things I was able to find. I never saw a case myself so I don't know what I can possibly add.

The doctor's method of preserving the passage for breathing was certainly unique—in using his tool to hold the tongue down so the air could be gotten through the child's mouth. It simply shows that a physician must use a little horse-sense along with his knowledge. It would certainly have been interesting if the case had lived and the doctor could have watched it.

I have never seen a case of bony obstruction, but I am treating a case now where the whole palate is drawn up into one mass. He gets a little air through one passage, but the other is completely closed. One entry is a small opening the size of a lead pencil and the other none at all;—he came to me with a case of suppurated ear, and we discovered this. I have never seen a case like that reported. I have no ideas to offer regarding it. It seems to me that the doctor did the very most that I could have suggested, under the circumstances.

**Dr. H. C. Todd,** Oklahoma City: I was especially interested in this subject when I saw it on the program and I wanted to be present at the reading of this report. I had a rather unique experience, judging from what Dr. McHenry reported, not with having both nares obstructed—but I have had two cases in which there was a complete obstruction on one side. I can not say that the doctor was unfortunate in not being able to observe his case any longer, because in my opinion it would have been a pathetic case for anyone to kept under observation.

In the two cases I have had I am thoroughly convinced that there is no method which the surgeon of today knows anything about in which he could cure the trouble that would not destroy the physiognomy of the patient.

I would like to report the two cases which I had. The first was a practitioner's wife, who had a complete bony obstruction on one side. It had existed through childhood and the remarkable thing was that the development of the nares was quite good. The unpleasant part to her was that the nares continued to fill and she could not blow it out. Of course it became rancid and was very annoying. It was the first case I ever saw of the kind and I kept it under observation for a year, but with no results.

Some fellow reported a very wonderful operation for this very condition in which he removed this obstruction. He cut through and elevated the mucosa and brought it back over the margin where he had moved the bony tissue and cut the mucous membrane, and in some way, that I don't understand, kept it open.

I opened the nose with a burr and in about two months it was completely closed again. The result was that with my case I destroyed every opportunity of working on that case again.

About two years afterwards a case came from way up in Alva, identically similar—on the same side of the nose, complaining of the same unpleasant feeling of the nose. In the meantime I had done a great deal of thinking about that other case. I had a more or less turbinate, which I removed to get into the nose. I

want to tell you how I did this. I have never reported it before because I regarded it as more or less an accident. I removed the membrane and cleaned it off completely, and I took a long chisel, a very sharp one, about a quarter of an inch wide. I cut through right level with the floor of the nose. Then I cut through on either side., cutting up about two widths of the chisel in cutting clear up on either side. Then I took my chisel—I had the turbinate cleaned out so I could see pretty well—and cut through less than half an inch, a quarter or an eighth above the floor, but not clear through the bone; then I just took a tool, a round iron probe, and knocked that thing back. Then with a good deal of care I went back to the naso-pharnyx.

If I had had more than one case I should probably have reported this, but as I say, I regarded it as an accident that it came out as well as it did. The flap dropped down after cutting through so I introduced a string through the nares down the throat and attached to that a piece of gauze, not big enough to pack the nose, but I had a raw surface all around up there. What I wanted was drainage to to get that stuff out of the nose, it was so offensive. I pushed the mucosa up over the bony part and I got the prettiest union you ever saw, which stopped this granulation. I got good results. I think that technique was far superior to the work of the Chicago man. I succeeded. We got some granulation above the floor of the nose, and I chiseled it away once or twice, but she was able to blow the nose on that side and would not take a great deal for the results we have gotten. We have an opening there through which you could put a good sized piece of cotton. This was done some four years ago. I have seen her in the last year and in my opinion the results are perfect.

You understand that the trouble with opening with the burr is that you get a raw surface all the way around. After my difficulties and all the troubles I met with in these two cases, I have wondered what a person would have done with an infant. The only thing I could see to do would be to make the temporary opening and that the child would breathe through its mouth all the rest of its life.

**Dr. A. W. Roth,** Tulsa: I had a case that I operated this fall. It became an extrusion from the sphenoid. The growth occupied the whole posterior nares completely. There was a bony growth that excluded the post nares. It is an osteo sarcoma and we did the usual operation and took out a large piece of it, we were afraid to go any farther with the work for fear of fracturing the base of the skull and possible hemorrhage. He could breathe through his nose nicely. Last week I had him come in again and the anterior surface looks very nice but the posterior surface is developing very rapidly again. The two horns are coming down all the time so that it is just a matter of time before the old condition is restored. But the hemorrhages of both nares were plugged through and when we got him through he was just a mass of blood. He fainted twice as they were bringing him to from the loss of blood. That was in December, I don't remember the exact date—it was right along at that time, we tied the *common carotid* and he has not had any bleeding since. He has gained some 27 pounds. He is a boy 17 years old and is doing finely, except that the growth is enlarging.

**Dr. Rutland:** I have nothing to add.

# JOURNAL OF THE OKLAHOMA STATE MEDICAL ASSOCIATION

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DR. CLAUDE A. THOMPSON, EDITOR-IN-CHIEF

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THIS IS THE OFFICIAL JOURNAL OF THE OKLAHOMA STATE MEDICAL ASSOCIATION. ALL COMMUNICATIONS SHOULD BE ADDRESSED TO THE JOURNAL OF THE OKLAHOMA STATE MEDICAL ASSSOCIATION, 307-8 SURETY BUILDING, MUSKOGEE, OKLAHOMA.

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive the Journal should call for immediate notification of the editor, 307-8 Surety Building, Muskogee, Okla.

Local news of possible interest to the medical profession, notes on removals, changes in address, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A. will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.


## EDITORIAL

### THE TULSA MEETING.

This meeting will be held May 14, 15 and 16. Physicians contemplating attendance are warned now to make reservations for the meeting at a very early date. Ten days or two weeks notice will not do at all, as is the case with most conventions, but the reservation must be made far in advance. Tulsa is the most crowded city in the United States, all hotels and rooming houses, as well as apartments, are crowded to the utmost at all times and the local physicians are suggesting this warning at an early date in order that attendants may provide for themselves in time or otherwise be left without any accommodations.

Following is a list of the better hotels, but in addition to that there are others, which are good, not here listed: Alexander hotel, 219 S. Boston, $1.00 and up; Tulsa Hotel, $2.00 up; Ketchum Hotel, $2.00 up; Brady Hotel, $1.00 up; Cordova Hotel $1.00 up; Detroit, $1.00 up; Drexal, $1.00 up; Boswell, $1.00 up; Lee, $1.00 up; Lahoma, $1.00 up; Majestic, $1.00 up; Marquette $2.00 up; Oxford, $1.00 up; Oklahoma, $1.50 up.

These are among the best in town. The Tulsa, Alexander, Ketchum, Marquette, Oklahoma and Brady are the best.

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### PRESENT CONDITION OF THE MEDICAL RESERVE.

Notwithstanding considerable misinformation to the contrary the Medical Reserve Corps of the army is in splendid condition from the numerical standpoint. Late reports indicate that we now have more than 19,500 men engaged in the service and that figure does not include those in the Regular Army.

The men throughout the country are rapidly becoming familiar with military forms and usages and the especially difficult paper work so necessary in the handling of an immense work. Promotions are coming to many of the men and there is general satisfaction as a rule among them. The "Gasoline Board"—the title is unofficial of course, is busy in the camps and cantonments and when a

man gets lazy or neglectful of his duties he is soon sent home to ruminate again over the pleasures of civil life, where the 5:30 reville and "Taps" disturb him not. The special work given many of the officers is especially fine. They are sent to various medical centers for special training in that branch they feel most qualified to handle and as one officer very aptly puts it: "We get splendid postgraduate work with all expenses paid". There is a growing idea, not confined to the physician, that the rank and corresponding pay of Medical Department should be raised. We have none, excepting the Surgeon General, holding the rank of Brigadier General, yet there are scores of Brigadiers in other branches of the service, who have nothing like the responsibility placed on men of lower rank in the Medical Department.

A few men have not yet accepted the commissions sent them from the Surgeon General's office after completion of their examination, but as a rule this is due to altered circumstances of the applicant and not to a disposition to evade duty.

## A VOLUNTEER MEDICAL SERVICE CORPS.

The Council of National Defense authorizes the following statement:

For the purpose of completing the mobilization of the entire medical and surgical resources of the country, the Council of National Defense has authorized and directed the organization of a "Volunteer Medical Service Corps", which is aimed to enlist in the general war-winning program all reputable physicians and surgeons who are not eligible to membership in the Medical Officers' Reserve Corps.

It has been recognized always that the medical profession is made up of men whose patriotism is unquestioned and who are eager to serve their country in every way. Slight physical infirmities or the fact that one is beyond the age limit, fifty-five years, or the fact that one is needed for essential public or institutional service, while precluding active work in camp or field or hospital in the war zone, should not prevent these patriotic physicians from close relations with governmental needs at this time.

It was in Philadelphia that the idea of such an organization was first put forward, Dr. William Duffield Robinson having initiated the movement resulting in the formation last summer of the Senior Military Medical Association with Dr. W. W. Keen as president—a society which now has 271 members.

Through the Committee on State Activities of the General Medical Board the matter of forming such a nation-wide organization was taken up last October in Chicago at a meeting attended by delegates from forty-six states and the District of Columbia. This committee, of which Dr. Edward Martin and Dr. John D. McLean—both Philadelphians—are respectively chairman and secretary, unanimously endorse the project. A smaller committee, with Dr. Edward P. Davis, of Philadelphia as chairman, was appointed to draft conditions of membership, the general Medical Board unanimously endorsed the Committee's report, the executive Committee —including Surgeons General Gorgas of the Army, Braisted of the Navy, and Blue of the Public Health Service—heartily approved and passed it to the Council of National Defense for final action, and the machinery of the new body has been started by the sending of a letter to the State and County Committees urging interest and the enrollment of eligible physicians.

It is intended that this new Corps shall be an instrument able directly to meet such civil and military needs as are not already provided for. The General Medical Board holds it as axiomatic that the health of the people at home must be maintained as efficiently as in times of peace. The medical service in hospitals, medical colleges and laboratories must be up to standard; the demands incident to examination of drafted soldiers, including the reclamation of men rejected because of comparatively slight physical defects; the need of conserving the health of the families and dependents of enlisted men and the preservation of sanitary conditions—all these needs must be fully met in time of war as in time of peace.

They must be met in spite of the great and unusual depletion of the medical talent due to the demands of field and hospital service.

In fact, and in view of the prospective losses in men with which every community is confronted, the general Medical Board believes that the needs at home should be even better met now than ever. The carrying of this double burden will fall heavily upon the physicians, but the medical fraternity is confident that it will acquit itself fully in this regard, its members accepting the tremendous responsibility in the highest spirit of patriotism. It will mean, doubtless, that much service must be gratuitous, but the medical men can be relied upon to do their share of giving freely, and it is certain that inability to pay a fee will never deny needy persons the attention required.

It is proposed that the services rendered by the Volunteer Medical Service Corps shall be in response to a request from the Surgeon General of the Army, the Surgeon General of the Navy, the Surgeon General of the Public Health Service, or other duly authorized departments or associations, the general administration of the Corps to be vested in a Central Governing Board, which is to be a committee of the General Medical Board of the Council of National Defense. The State Committee of the Medical Section of the Council of National Defense constitutes the Governing Board in each State.

Conditions of membership are not onerous and are such as any qualified practitioner can readily meet. It is proposed that physicians intending to join shall apply by letter to the Secretary of the Central Governing Board, who will send the applicant a printed form, the filling out of which will permit ready calssification according to training and experience. The name and data of the applicants will be submitted to an Executive Committee of the State Governing Board, and the final acceptance to membership will be by the national governing body. An appropriate button or badge is to be adopted as official insignia.

The General Medical Board of the Council of National Defense is confident that there will be ready response from the physicians of the country. The Executive Committee of the General Medical Board comprises: Dr. Franklin Martin, Chairman; Dr. F. F. Simpson, Vice-chairman; Dr. William F. Snow, Secretary; Surgeon General Gorgas, U. S. Army; Surgeon General Braisted, U. S. Navy; Surgeon General Rupert Blue, Public Health Service; Dr. Cary T. Grayson; Dr. Charles H. Mayo; Dr. Victor C. Vaughan; Dr. William H. Welch.

## CURRENT MEDICAL LITERATURE

**Conducted by**

**DRS. CURT von WEDEL, Jr., and L. J. MOORMAN, Oklahoma City and FRED J. WILKIEMEYER, Muskogee**

### GASTRODUODENOSTOMY—ITS INDICATIONS AND TECHNIC.

By Donald C. Balfour.

(*Annals of Surgery*, January, 1918.)

Balfour takes up the indications for a modified pyloroplasty, the indications of which are as follows: When the stomach and duodenum are not so highly adherent as to make it very difficult; when pylorectomy is not indicated; when the ulcer is small and on the upper anterior surface of the duodenum; or when the ulcer can be either excised or invaginated.

Briefly, indications are: (1). A pyloric lesion with marked obstruction with associated balooning of the duodenum. (2). Whenever it is too difficult or for any reason not feasible, to perform a gastrojejunostomy. (3). When for any reason, as jejunal ulcer, it is necessary to excise an old gastrojejunostomy.

His technic is simple, using first interrupted silk, then No. 1 chromic, no clamp, ligating all bleeding points, then inner suture of chromic No. 2. He completes anterior sutures as posterior, with chromic and interrupted silk.

C. von Wedel, Jr.

### TREATMENT OF WAR WOUNDS.

By Major F. Besley, M. R. C.

(*Surgery, Gynecology and Obstetrics*, January, 1918.)

Wounds are serious directly in proportion to the amount of the circulation destroyed and the amount and character of extraneous foreign material carried into the tissues.

The all important factor to consider is, how far must one go in attempting to destroy the bacteria and how much must one promote the resisting power of the cell? The author believes that the promotion of the resisting power of the cell is paramount.

As pus under pressure and not surface pus, is the damaging agent, free incision and removal of all devitalized tissue and foreign bodies are the main factors.

It has been shown by the French that wounds well taken care of within the first nine hours, can, in most instances, be cleaned out, and sutured—primary union resulting in a large majority of cases.

He is much opposed to the bismuth-iodin-paraffin treatment, and believes that the chief benefits to the Dakin-Carrel solution are the heat and adequate drainage. Aseptic and open air treatment he believes to be the best procedure. C. von Wedel, Jr.

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### REPAIR OF TENDONS IN FINGER.

By Sterling Bunnell.

(*Surgery, Gynecology and Obstetrics*, January, 1918.)

Bunnell takes up this phase of plastic surgery in a very interesting article. He states that most failures following attempt ed tendon repair are due to the sheath and the loose elastic tissue around the tendon being destroyed, and the tendon becoming imbedded in firm scar tissue.

The tendons move by slipping within the sheath, and by the movement of the sheath itself. He gives the following as the chief causes of failure: (1) Traumatizing tenchic; (2) medium incision; (3) obliteration of pulleys; (4) using methods which replace gliding mechanism by adhesions; (5) too much or too little post operative movement; (6) crude suturing of tendons.

1. Traumatizing technic. Obviously great care should be taken as to asepsis and to prevent injury to the smooth tendon or sheath.

2. Medium incision, causes contracture and places scar on pulley surface. Best is lateral or combined lateral and transverse.

3. Obliteration of the pulleys. If the pulleys are cut, the tendon will naturally span the joint and not slip through. One should avoid cutting them and try to slip the tendon through them.

4. Obliteration of the gliding mechanism by adhesions. It is best to entirely replace the injured tendon and sheath if too much is destroyed or too raw a surface is left. All severed tendons should be repaired as early as possible. It is usually best to draw the whole tendon from its sheath and replace it with a new tendon, making the tendon suture at the insertion and at the palm where adhesions are less detrimental.

Movement should be instituted with much care and judgment. The tension of the tendon is a very interesting phase nicely worked out by Mayer.

Great care should be taken in suturing the tendons, as any exposed suture or very ragged joint tends to adhesions.

Bunnell has devised three very useful instruments to aid him in his work. C. von Wedel, Jr.

## PERSONAL AND GENERAL NEWS

**Dr. R. D. Rector,** Anadarko, is convalescing from typhoid.

**Dr. E. R. Askew,** Hugo, is doing special work in New Orleans.

**Dr. J. S. Rollins,** Paden, is doing special work in Kansas City.

**Dr. W. W. Kerley,** Anadarko, visited the Rochester clinics in February.

**Dr. William R. Barry, M. R. C.,** Bradley, has been promoted to a captaincy.

**Dr. J. L. Day, M. R. C.,** formerly of Norman, has been promoted to a captaincy.

**Dr. John W. Pendleton,** Kingfisher, has received his commission in the M. R. C.

**Dr. M. H. Newman,** Shamrock, is moving to 947 West 13th street, Oklahoma City.

**Dr. M. L. Lewis, M. R. C.,** Ada, has been ordered to report at San Antonia for duty.

**Dr. J. W. Bone,** Sapulpa, announces that he will be a candidate for mayor of that city.

**Dr. J. A. Cheek,** Sallisaw, has been ordered to duty at Ft. Sill with the Medical Reserve.

**Dr. Carl Puckett, M. R. C.,** Pryor, has been promoted to a captaincy in the Aviation Section.

**Dr. A. P. Gearheart, M. R. C.,** Blackwell, has been ordered to active service at Ft. Riley, Kansas.

**Dr. Geo. E. Kerr, M. R. C.,** Chattanaooga, has received orders to report for duty at Ft. Oglethorpe.

**Dr. V. Berry, Captain M. R. C.,** Okmulgee, has been ordered to report at Ft. Riley for active service.

**Dr. R. K. Goddard,** Supply, has been ordered to a Texas cantonment for duty with the Medical Reserve.

**Dr. H. M. Reeder,** Asher, has removed to Shawnee, having his office now in the Monmouth building.

**Dr. Louis Bagby, M. R. C.,** Vinita, had hardly received his commission before he was ordered to report for duty.

**Dr. G. P. McNaughton,** Miami, has been ordered to report for active service with the medical Reserve Corps.

**Dr. G. H. Sanborn,** Shawnee, has been a patient in the General Hospital for several weeks with an unresolved pneumonia.

**Dr. J. E. Gallagher,** of St. Louis, is assisting Dr. D. A. Myers, Lawton, during the pendency of his call into the service.

**Dr. D. Y. McCary,** Holdenville, spent a few days in the Henryetta Hospital recently after unsuccessfully meeting a Ford.

**Dr. Thos. L. Lauderdale,** Oklahoma City, has been called to the colors at San Antonio. He will be attached to the Signal Corps.

**Dr. E. L. Dawson,** City Superintendent of Health, Chichaska, closed one room of the city schools recently, the closing due to smallpox.

**Dr. J. F. Duckworth,** Tahlequah, has been ordered to active duty at Ft. Sill. Dr. Duckworth formerly saw service in the Philippines.

**Dr. G. S. Barber,** Lawton, has been ordered to active duty at Kelley Field. He had been commissioned in the M. R. C. just one month.

**Dr. M. H. Edens,** Anadarko, has been commissioned in the Medical Reserve Corps and ordered to Kelley Field for duty with the aviation section.

**Dr. W. E. Lamerton,** Enid, is the latest physician sufferer from Ford theft. He offers $450.00 reward for its recovery; the car contained a valuable case of surgical instruments.

**The Medical Section,** Oklahoma State Council of Defense, has ordered a census of Oklahoma physicians. The census is to take into consideration their specialties, physical, moral and mental fitness and their loyalty.

**Dr. H. V. L. Sapper,** of the State Health Department, recently visited the Miami mining district and there conferred with Federal officials of the Public Health Service relative to the control of infectious diseases. It is said typhoid has been unusually prevalent.

**Shawnee officers** recently uncovered what is believed to be a system for illicit sale of narcotics when two men were arrested with more than $250.00 worth of cocaine and morphine which they had just taken from the express office. The shipment was addressed to a Purcell physician.

**Dr. Ralph R. Mavity,** Tonkawa, and Miss Ethel Lancaster were married in Brownsville, Texas, January 27th. Dr. Mavity is First Lieut M. R. C., 111th Sanitary Train, a graduate of Oklahoma University, and Mrs. Mavity is a graduate of the Nurses' Training School of the University.

**Dr. Porter Norton,** formerly of Mangum, died recently in Louisville, Ky. The cause of his death is said to be accidental poisoning. Dr. Norton was serving in the Naval Reserve, but some months ago became ill, the illness necessitated his going to Louisville for treatment, where he died.

**Dr. J. H. Scott,** County Superintendent of Health, and Dr. G. S. Baxter, City Health Officer, are incvstigating the water supply of Shawnee. They contend that the water is not what it should be. The water is taken from the North Canadian river and smells very much like packingtown sewer contamination.

**The Pottowatome County Medical Society** have amended their resolution regarding their members in the Medical Reserve Corps. Hereafter the family of a married doctor will receive from the Society fifty dollars per month. The family of unmarried doctors shall receive twenty-five dollars per month, all during the continuance of the war.

**The Pottawatome County Medical Society** has appointed the following Hospital Committee to work out plans to secure more adequate hospital facilities in Shawnee: Dr. G. S. Baxter, Dr. J. M. Byrum, Dr. J. E. Hughes. Failing to get the city authorities to enlarge the Municipal Hospital to meet the demands of the Medical Society, the society will endeavor to erect its own hospital.

**Medical Officers of Local and Advisory Boards** very generally attended meetings at several central points over the State in February to hear the ideas and suggestions of Major Van Kirk and Lieutenant Barron of the Medical Reserve Corps, who were detailed from the 90th Division for the purpose of discussing generally the points and stumbling blocks usually encountered at cantonments as to physical rejections. It is generally conceded that the meetings will do much good to uniformize physical examinations hereafter made in Oklahoma.

**The Chiropractic petition,** after months of waiting and legal skirmishing, has been declared by the Secretary of State, J. L. Lyon, to have a sufficient number of signatures to warrant the matter going to the people at the next election, however the Supreme Court of the State will finally pass on the matter before the Chiros will be called on to get out and hustle votes to set aside the act of the Legislature which declared they must go to school awhile and pass an examination before they could "practice" their wonderful science on the people.

# MISCELLANEOUS

## TRANSFUSION OF UNMODIFIED BLOOD.

Since the publication of his former paper in the *Journal A. M. A.*, of Feb. 13, 1915, in which he described his technic, L. J. Unger, New York, has performed 165 transfusions by this method giving an analysis of it in *The Journal A. M. A.*, Dec 29, 1917. He reviews the conditions under which it was used and the indications for which it was employed. His summary and conclusions are as follows: 1. The best results of transfusion were obtained in hemorrhage, diseases of the blood, toxemias and shock. In 88 per cent. of the cases of acute hemorrhage, bleeding was stopped by one transfusion. In pernicious anemias, remissions can be iniatiated. Repeated transfusions, he declared, frequently bring on repeated remissions. Transfusion should be performed before all the effects of the preceding transfusion have been lost. If no remission results, transfusion with a different donor should be repeated. For the hemorrhage of hemophilia, transfusion is practically a specific. It is dangerous to delay too long with palliative measures if active bleeding is present. In purpura, transfusion gives only moderately good results. In the severe cases, it would seem advisable to carry out the suggestion of splenectomy with preliminary transfusions. All attempts to influence acute leukemia failed. In bleeding of the new-born, transfusion is a specific. Especially in cases of melena, temporizing by using other methods is contraindicated. The median basilic vein can be used regardless of the baby's age, and is the route of choice. Transfusion has yielded encouraging results in toxemia, associated with acute infections (pneumonia, typhoid fever), toxemia of pregnancy, scurvy and shock. Transfusion seems to overcome shock if employed at the onset of the symptoms. Since the number of transfusions for these conditions was comparatively small, further attempts must be made in order definitely to settle the questions involved. 2. Transfusion is often of assistance in overcoming intractable suppurative processes and causing a marked increase in the vitality of the patient. In bacteremias, transfusion has had practically no success. It is possible however, that if immune donors were used the results might be better. Transfusion given preliminary to an operation will often so improve the patients condition that the surgeon is justified in risking an operation. It will prolong the life of a patient suffering with a debilitating condition. 3. The syringe cannula method (requiring only one syringe) has proved a simple, efficient and dependable one for giving whole unmodified blood. The giving of unmodified blood is the method of choice when blood is required as a tissue (as in various anemias). When it is required to replenish impoverished circulation, citrated blood may serve as a substitute.

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## CANCER.

J. W. Vaughan, Detroit (*Journal A. M. A.*, Dec. 8, 1917), briefly notices his former work on cancer and its corroboration by other observers. He adds that while these investigations have not added much of decided value to the solution of the cancer problem, they have contributed to what might be called its intelligent treatment and given us an exact knowledge as to when operative treatment is indicated and when it will shorten life rather than prolong it. Metchnikoff was the first to show that tissue cells introduced into the animal body were ingested by the large mononuclear leukocyte, but he himself never associated this cell with any protective function in malignancy. The next work calling attention to blood cells of splenic origin, and associating it, for the first time, with the protective apparatus against malignancy, was that done by the writer's assistants and himself. They have done more than 30,000 differential blood counts and have ascertained that there is invariably an increase in large mononuclear leukocytes following the injection of cancer protein into normal persons or animals. The percentage of increase is dependent on certain factors, chief of which is the number of body cells with which protein comes in contact. A subcutaneous injection is followed by a slight increase, an intravenous injection by a greater increase and the intraperitoneal method by a still larger increase. Another important factor is that the sensitizing dose should not be too large. From three to ten minims of 0.5 or 1 per cent solution or suspension of either residue or vaccine is sufficient. The increased percentage of large lymphocytes is of short duration, lasting from four to twenty-four hours, during which time the animal is sensitized to large intravenous doses of the protein. But such sensitization is lost when the increase in large mononuclear cells again recedes. The writer thought, at first, that this reaction was a specific for cancer tissue but Fischer's work had helped to show him that this was incorrect. The writer immediately started blood counts following injections of fetal autolysate, percental residue and tissue vaccines from all sources, and he obtained results of decided interest. Chief among these was the fact that the more the tissue used reverted to the embryologic type, the greater was the increase in the large lymphocytes following its injection. This forced him to conclude that we had not here a specific ferment, but were dealing with a specific proteolytic ferment produced by the large mononuclear leukocytes, which is specific only to a limited degree. It also explained why some forms of cancer gave but a slight increase in large mononuclear cells after injection, while others gave an increase from 200 to 300 per cent. Careful study of many tumors indicated that the more the tumor reverted to the embryologic type the greater was the resulting increase. It was, therefore, thought best to use a tissue invariably giving an increase, and a residue made from normal placental tissue was found to answer the requirements most satisfactorily. It is now always used in the writer's tests for the activity of the malignant immune mechanism, unless they have been especially fortunate

in obtaining an extremely malignant sarcoma. It can now be definitely stated that the immune mechanism in malignancy is a ferment which is formed in the large mononuclear leukocytes and is usually of splenic origin. The study of blood findings in all stages of malignancy was next undertaken and, in general, it may be said that cases of early malignancy usually showed a decided decrease in the total number of polymorphonuclears with a corresponding increase in mononuclears, resembling that in exophthalmic goiter, syphilis, and tuberculosis. When a tumor is growing rapidly, and always after metastasis has occurred, the percentage of polymophonuclears runs above seventy and is usually higher. A differential count in early malignancy frequently varies from day to day, retrogressing with a high percentage of mononuclears. Also, the reverse occurs with an increase of polymorphonuclears. The study of this large series of blood counts has given one fact of decided clinical importance, namely, that metastasis does not usually occur until the percentage of polymorphonuclear cells becomes high and remains so. In other words, metastasis is an indication of failure of the immune mechanism. From this it can be seen that the first differential count in any case of malignant disease shows whether metastasis has occurred, and whether the case is operable. Operation, the writer says, is best performed when the percentage of mononuclears is high, as metastasis is less liable to occur than from the operative handling. The immune mechanism may be lost when the tumor is yet small, after which the progress of the disease becomes rapid, and operation usually aggravates it. In other cases, apparently much more advanced, the immune mechanism can still be stimulated. Such patients are likely to live longer than the physician expects, and temporary benefits they enjoy from Nature's efforts form the basis of many claims of charlatans who assume the credit.

## COUNCIL ON PHARMACY AND CHEMISTRY.

### Articles Accepted.

During January the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with new and Non-official Remedies:

**Chlorazene Surgical Powder:** The Abbott Laboratories.

**Betanaphthyl Salicylate (Calco):** Calco Chemical Company.

**Acetylsalicylic Acid-Merck:** Merck and Company.

## NEW AND NONOFFICIAL REMEDIES

**Sterile Solution Coagulen-Ciba (3 per cent.) 1.5 cc. Ampoules.** Each ampule contains 1.5 cc of a 3 per cent. solution of coagulen-Ciba. A. Klipstein and Co., New York City.

**Sterile Solution Coagulen-Ciba (3 per cent.) 20 cc. Ampoules.** Each ampule contains 20 cc. of a 3 per cent. solution of coagulen-Ciba. A. Klipstein and Co., New York City.

**Tablets Coagulen-Ciba 0.5 gm.** Each compressed tablet contains 0.5 gm. coagulen-Ciba and 0.46 gm. sodium chloride. A. Klipstein and Co., New York City.

**Dichloramine-T (Calco).—Paratoluenesulphonedichloramide.** This is said to act much like Chloramine-T, but is capable of being used in a solution of eucalyptol and liquid petrolatum, thus securing the gradual and sustained antiseptic action. Like Chloramine-T, Dichloramine-T (Calco) is said to act essentially like the hypochlorites, but to be less irritating to the tissues. Dichloramine-T (Calco) is said to be useful in the prevention and treatment of diseases of the nose and throat. It has been used with success as an application to wounds, dissolved in chlorinated eucalyptol and chlorinated paraffin oil. Manufactured by the Calco Chemical Co., Boundbrook, N. J.

**Halazone-Calco.—Parasulphonedichloramidobenzoic acid.** It is said to act like chlorine and to have the advantage of being stable in solid form. In the presence of alkali carbonate, borate and phosphate it is reported that halazone in the proportion of from 1,200,000 to 1,500,000 sterilizes polluted water. Manufactured by the Calco Chemical Co., Bound Brook, N. J.

**Chloramine-B (Calco).—Sodium Benzenesulphochloramine.** It contains from 13 to 15 per cent. available chlorine. The actions, uses and dosage for Chloramine-B (Calco) are claimed to be essentially similar to those given in New and Nonofficial Remedies, 1917, for Chlorazene. This compound was introduced into medicine by Dakin. Its physical and chemical properties are similar to those of Chloramine-T. Manufactured by the Calco Chemical Co., Bound Brook, N. J. (*Journal A. M. A.*, January 12, 1918, p. 91).

## PROPAGANDA FOR REFORM.

**The Carrel-Dakin Wound Treatment.** William H. Welch writes that he was most favorably impressed with the Carrel treatment of wounds, and believes that Carrel should receive credit for calling attention to the possibility of the sterilization of infected wounds by chemical means. He holds that while undoubtedly the tenchic of the Carrel treatment is elaborate and requires an intelligence and skill on the part of the surgeon which cannot be counted on for the average surgeon, and that while the preparation of the neutral solution of sodium hypochlorite also requires chemical skill, surgeons should acquaint themselves with the principles and technic, and try to overcome the difficulties of applying the treatment (*Journal A. M. A.*, December 8, 1917, p. 1994).

**Hemo-Therapin.** The Council on Pharmacy and Chemistry reports that, according to the Hemo-Therapin Laboratories, New York, Hemo-Therapin is a "combination of highly refined creosols and phenols (which have been detoxicated by special processes) with salts of iron, potassium, sodium, phosphorus and calcium in minute but physiologic proportions—the solution as a whole being designed to approximate closely in various fundamental details the chemistry of the blood." No statement is made, however, as to the quantities of the several ingredients, nor is any information given as to the identity of the "creosols" and "phenols", or as to the nature of the processes whereby these are "detoxicated". The Council explains that the Hemo-Therapin Laboratories ask physicians to believe that the occasional intravenous administration of this liquid will benefit or cure a long list of ailments, including erysipelas, septicemia, pyemia, puerperal infection, malaria, pneumonia, typhoid fever, diabetes, chronic Bright's disease, goiter, arteriosclerosis and locomotor ataxia. The testimonials which are presented for the claims bear a striking likeness to those found in "patent medicine" almanacs. One of the cases is a woman who was bitten by a snake seventeen years ago and who, on the anniversary of the bite, suffers severely from the original bite (*Journal A. M. A.*, January 5, 1917, p. 48).

**Venosal.** The Council on Pharmacy and Chemistry reports that Venosal, sold by the Intravenous Products Company, Denver, Colo., is inadmissible to New and Nonofficial Remedies because its chemical composition is indefinite; because the therapuetic claims are exaggerated, and because the composition is unscientific. Venosal is a solution of sodium salicylate containing also colchicum and an insignificant amount of iron. Since it is possible to obtain the salicylate effects promptly and certainly by oral administration, the inherent dangers of intravenous medication render its routine employment unwarranted. At this time, when economy is the national policy, a further objection to the use of Venosal is the unnecessarily high expense of Venosal itself and the administration (*Journal A. M. A.*, January 5, 1917, p 48).

**Our Archaic Patent Laws.** The reports of the Council on Pharmacy and Chemistry on Secretin-Beveridge and the Need for Patent Law Revision are opportune. At the request of the National Research Council the "Patent Office Society", an association of employees of the U. S. Patent Office, has created a committee to study the U. S. Patent Office and its service to science and to arts. There is no question that one of two things is needed: either a radical change in the patent law itself or the application of more brains in its administration. Now the United States Patent Law is too often used to obtain an unfair monopoly of a medicament or to abet quackery (*Journal A. M. A.*, January 12, 1918, p. 95).

**Secretin-Beveridge and the U. S. Patent Law.** In 1916, A. J. Carlson and his co-workers demonstrated that commercial secretin preparations contained no secretin, and that secretin administered by mouth or even into the intestine was inert. Yet a U. S. patent was subsequently issued to James Wallace Beveridge, for a process of preparing secretin preparations which would contain secretin when they reached the consumer, and in a form resisting destruction in its passage through the stomach. At the request of the Council on Pharmacy and Chemistry, A. J. Carlson and his associates studied the stability of the secretin made according to the Beveridge patent. The investigation shows that the patent gives no process for the manufacture of commercially stable secretin preparations, nor any means for preventing the destruction of secretin by the gastric juice when administered orally (*Journal A. M. A.*, January 12, 1918, p. 115).

**Need for Patent Law Revision.** The Council on Pharmacy and Chemistry publishes a report prepared by its Committee on the patent law revision, which is an appeal for an amendment of the patent law which governs the issuance of patents on medicinal preparations, and more particularly for a revision on the procedure under which such patents are issued. The report points out that to increase our national efficiency, the govermnent must protect and stimulate science, art and industry, and at the same time curb waste of the country's resources; and that, to this end, the patent office should encourage discoveries which go to increase national efficiency, and refuse patent protection when such protection is not in the interest of national efficiency, conservation of energy and material resources. The report presents a considerable number of specific instances which demonstrate that patent protection has been given where it was not deserved and not in the interest of the public. The report concludes with a reference to the investigation of a patent granted for a preparation of secretin, apparently without any attempt to confirm the highly improbable claims of the patent applicant (*Journal A. M. A.*, January 12, 1918, p. 118).

**Arsphenamine.** No this is not a new chemical, it is simply the name adopted by the Federal Trade Commission for the Hydrochloride of 3-diamino-4-dihydroxy-1-arsenobenzene in other words, salvarsan. The three firms which have been licensed to manufacture this drug are permitted to have their own trade names for it, but the official name "arsphenmine" must be the prominent one on the label of all brands. Hence physicians should at once make it a point to learn and use the name "arsphenamine". (*Journal A. M. A.*, January 19, 1918, p. 167).

**Cactina Pillets.** According to the manufacturer of Cactina Pillets (The Sultan Drug Co.), "cactina" is "invaluable in all functional cardiac disorders such as trachycardia, palpitation, arrhythmia, and whenever the heart's action needs regulating or support." The manufacturer gives no information as to the mode of action of "cactina", but states that it is totally unlike that of digitalis. An examination of the literature indicates that *cactus grandiflorus* is therapeutically inert, and no one except Mr. Sultan of the Sultan Drug Company claims to have isolated an active principle of it. The Council on Pharmacy and Chemistry examined the literature relating to cactus and certain proprietary preparations, including Cactina Pillets, alleged to be made from cactus, and reported that the literature does not afford a single piece of careful, painstaking work which lends support to the claims made for Cactina Pillets. Since then, Hatcher and Bailey examined genuine *cactus grandiflorus*, and also found that the drug was pharmacologically inert (*Journal A. M. A.*, January 19, 1918, p. 185).

**Surgodine.** The A. M. A. Chemical Laboratory having found Surgodine (Sharp and Dohme) to contain 2.51 gm. free iodin (instead of 2.25 per cent. as claimed) and 1.78 gm. combined iodin (probably chiefly hydrogen iodin), the Council on Pharmacy and Chemistry reports that it is essentially similar to the official tincture of iodin, except that it is considerably weaker and, instead of pota3sium idid, it presumably contains hydrogen iodid and probably ethyl iodid to render the iodin water soluble. Its composition, however, is secret. The Council held Surgodine inadmissible to New and Nonofficial Remedies because its composition is secret; because the therapeutic claims made for it are exaggerated and unwarranted, and because it is an unessential modification of the official tincture of iodin. Surgodine is a good illustration of the economic waste inseparable from most proprietary medicines. While the free-iodin strength of Surgodine is only about one third that of the official tincture, its price is between two and three times as high (*Journal A. M. A.*, January 26, 1918, p. 257).

**Dionol.** If the physicians take the word of the Dionol Company, the therapeutic possibilities of Dionol are apparently limited only by the blue sky. Even the company admits that "the unprecedented range of action" of this marvel "may come as a surprise". A glance over the published case reports confirms the inference. Dionol is furnished in two forms: as an ointment and as an emulsion. Dionol itself is a sort of glorified petrolatum, the use of which is said to prevent the leakage of energy from the nerve cells, and by overcoming the short circuiting always said to be present in inflammations, is asserted to accomplish its wonders (*Journal A. M. A.*, January 26, 1918, p.257).

## LOCAL ANESTHESIA.

Torald Sollmann, Cleveland (*Journal A. M. A.*, Jan. 26, 1918), questions the desirability of testing systemic toxicity of local anesthetics on rodents as they are quite different from human beings in their response to certain poisons. He does not, however, go into this aspect of the subject, but confines himself to the subject of anesthetic efficiency. The methods and their respective merits are discussed, and the results are presented in the form of diagrams which cannot well be reproduced in an abstract. For testing anesthesia of mucous membranes, the writer finds cocain, beta-eucain, alypin, and tropacocain the most useful. Quinin-urea hydrochlorid is fairly active. Apothesin, novocain and potassium chlorid are relatively ineffective. Alkalization increases the efficiency from two to four times. The solution of the anesthetic salts may be mixed with an equal volume of 0.5 per cent. sodium bicarbonate, without loss of efficiency, and with a saving of one-half of the anesthetic. The mixture, however, does not keep well and should be freshly made. Epinephrin added to the anesthetic does not increase its efficiency, and is probably useless. For infiltration and injection anesthesia, cocain, novocain, tropacocain and alypin are about equally efficient. Beta-eucain and quinin-urea hydrochlorid are intermediate, and apothesin and potassium sulphate or chlorid are relatively ineffective. The effectiveness is not increased by alkalization. Epinephrin greatly prolongs the anesthesia and should always be added, except to tropacocain. An isotonic solution would be equivalent to about 0.125 per cent. of cocain or novocain. It may well be used in place of sodium chloride for making anesthetic solutions. Several of the synthetic anesthetics can completely displace cocain. In view of this fact, it would be possible to prohibit entirely the importation, manufacture, sale and use of the habit-forming drug, except for scientific purposes.

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| Beaver | | |
| Beckham | | |
| Blaine | J. B. Leisure, Watonga | J. A. Norris, Okeene |
| Bryan | J. L. Reynolds, Durant | D. Armstrong, Durant |
| Caddo | A. H. Taylor, Anadarko | Chas. B. Hume, Anadarko |
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| Coal | | |
| Cotton | | |
| Craig | | |
| Creek | | |
| Dewey | | |
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| Haskell | | |
| Hughes | | |
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| Kay | | |
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| Lincoln | | |
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| Love | | |
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| Major | | |
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| Noble | | |
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